GDT INC.

DataFastX

USER MANUAL

Revision 1.0.3
June 12, 2014

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Revision	Date	Author	Description
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1.0.1	April 24, 2013	M. Smithwick	- Revised wording/format
1.0.2	January, 2014	J. Carranza	- Revised wording/format/Pictures
1.0.3	January 17, 2014	Tam Ho	- Update the pictures

Approvals	Title	Date	Signature

1 Introduction

The **DataFastX** disk drive (11) Target Duplicator is designed to be used as a stand-alone IDE and SATA Duplication or Erase system. It will selectively duplicate (Copy) program software data from one *Source* drive to up to eleven *Target* drives simultaneously. There are two Erase modes including an optional *Wipe Disk* DoD Wipe mode (DoD 5220M) or our Standard Fast Purge mode.

Ideal for volume applications, its Smart duplication mode enables the copying from one size Source drive to a different (DELTA) size set of target drives while automatically defragmenting, partitioning, and formatting during the duplication process in DELTA Smart mode. *Source* and *Target* drives that are identical (Twin) but have a relatively smaller Image may be copied in TWIN Smart mode to save valuable time by copying only the Data and not blank or empty sectors. Both Smart modes copy only the Image/Data and not the blank or empty sectors.

Target drives that are identical to the S*ource* drive may also be "mirrored" or duplicated exactly, sector by sector. This is most efficient for very large images (see the Mirror Copy Decision Chart in section 5.)

DataFastX-G3™ Highlights:

- With the front panel, the **DataFastX-G3™** *(DFX)* does not require an external monitor, keyboard or mouse—it is a Stand-alone system.
- The interface is friendly and easy to use with a large 3.5-inch graphic LCD (480x320)
- Supports SATA III, giving the full and fastest duplication speeds for SATA drives
- Supports TGC-OPAL security for duplication of OPAL compliant SED drives
- Supports the OPAL Trusted Platform Module (TPM)
- With user configurable options even difficult to duplicate drives can be duplicated
- Duplication of the HPA is supported
- One button duplication supported. Insert drives and push button to duplicate
- One button purge supported--insert drives and push button to Erase
- Optional DVD Drive for disc Logfile archival

2 Mechanical Interface

Figure 1: Mechanical interface

1   POWER button
2   Front Panel (It includes: a 3.5-inch color LCD (480x320) user display, LED bar to display the process status, buttons to control (UP, DOWN, LEFT, RIGHT, SELECT, CANCEL, MIRROR, SMART)
3   Source (S) drive port
4   Target (T) 1 drive port
5   Target (T) 2 drive port
6   Target (T) 3 drive port
7   Target (T) 4 drive port
8   Target (T) 5 drive port
9   Target (T) 6 drive port
10   Target (T) 7 drive port
11   Target (T) 8 drive port
12   Target (T) 9 drive port
13   Target (T) 10 drive port
14   Target (T) 11 drive port
15   DVD +/- RW drive (optional)
16   Removable standard system drive (optional)

3 Definitions and Abbreviations

- ATA – Advanced Technology Attachment.
- CD – Compact Disc.
- DF - Data Fast.
- DVD – Digital Video Disc.
- DFX - DataFastX-G3™
- EXT – Extended Linux file system (e.g., Ext2/3/4.)
- HPA - Host Protected Area.
- IDE - Integrated Drive Electronics.
- LBA - Logical Block Address.
- LCD - Liquid Crystal Display.
- NTFS – New Technology File System.
- O/S - Operating System.
- OPAL - Disk drive security specification by the Trusted Computing Group (TCG.)
- PATA - Parallel Advanced Technology Attachment.
- R/W – Read / Write.
- SATA - Serial Advanced Technology Attachment.
- SED - Self Encrypting Disk.
- SSD – Solid State Drive.
- TCG – Trusted Computing Group.
- TPM - Trusted Platform Module.
- UDMA – Ultra Direct Memory Access.
- UPT – Universal Purge Tool.

4 User guide

4.1 Getting started for DUPLICATION

Here is the process to turn on the machine and Boot-Up for Duplication:
- **Step 1** - Install the appropriate NON-CLASSIFIED or CLASIFIED System drive provided.
   Step 2 - Plug in the power cord to a 110 VAC, 50/60 Hz power source.
- **Step 3** - Turn on the power supply at the rear of the machine.
- **Step 4** - Press the POWER button on the front of machine.
- **Step 5** - The machine will boot from the Hard Drive with the following process below:
    - As the **DFX** is booting, the LCD will show the configuration hardware screen and then switch to the Loading screen (total time about a minute.)

Figure 2: Configuration hardware screen
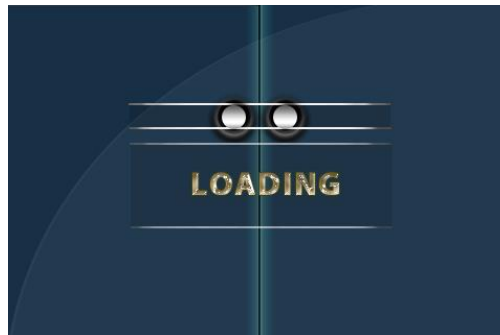
Figure 3: Loading screen

- Then the **DFX** logo will open to display the booting process.
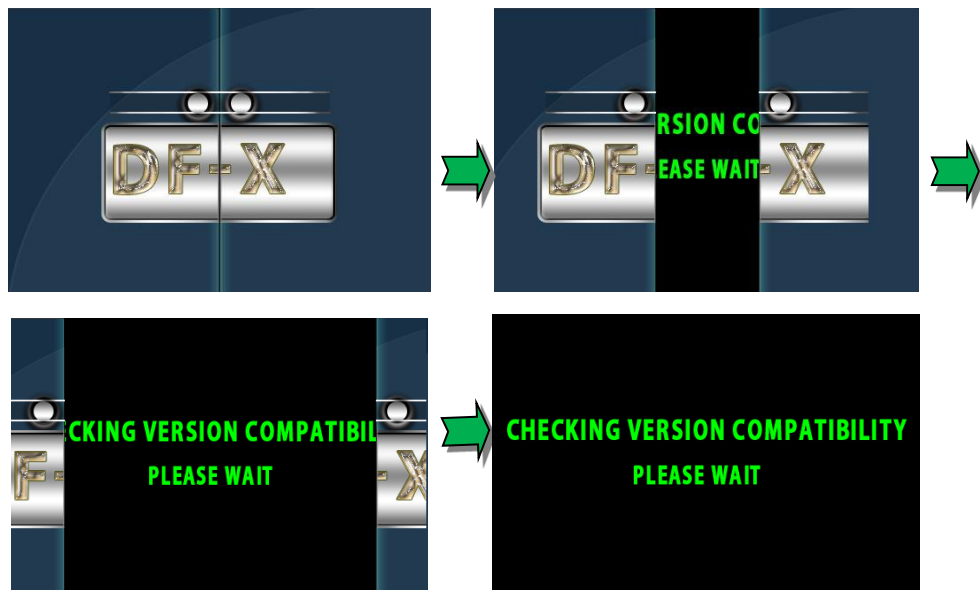
Figure 4: Open the Door screen

- The software will check the version compatibility between software and firmware.
  - If compatible the machine will login to the main menu.
  - If they are not compatible the machine will upgrade the corresponding firmware automatically.

- **Step 4:** The machine is ready to use when the main menu is shown:

Figure 5: Main Menu

4.2 Front Panel

- The **New DFX** front panel consists of a 3.5-inch graphic LCD screen (480x320), eight control buttons and an LED bar for displaying the status of processes.

Figure 6: Front Panel with LCD, status LED and control buttons

- **UP ARROW** - Move up to select the function or select hard drive...
- **DOWN ARROW** - Move down to select the function or the hard drive...
- **LEFT ARROW** - Move left to select the function or the hard drive...
- **RIGHT ARROW** - Move right to select the function or the hard drive...
- **CANCEL** - Return to the previous screen, cancel a process, a setting….
- **SELECT** – Select/execute a function, deselect a hard drive.
- **MIROR** - Execute the Mirror Copy function.
  - This function can be used directly or after the check disk process to execute the Mirror Copy function.
- **SMART** - Execute the DeltaSmart Copy or the TwinSmart copy function (dependent on the SmartCopy mode settings.)
 - This function can be used directly or after the check disk process to execute the SmartCopy function.
- **LED BAR**- Consists of 10 LEDs (1 LED represents 10% of the process.) It is used to show the percent of the current process (copying, checking disk, wiping disk, etc.)

4.3 User interface structure
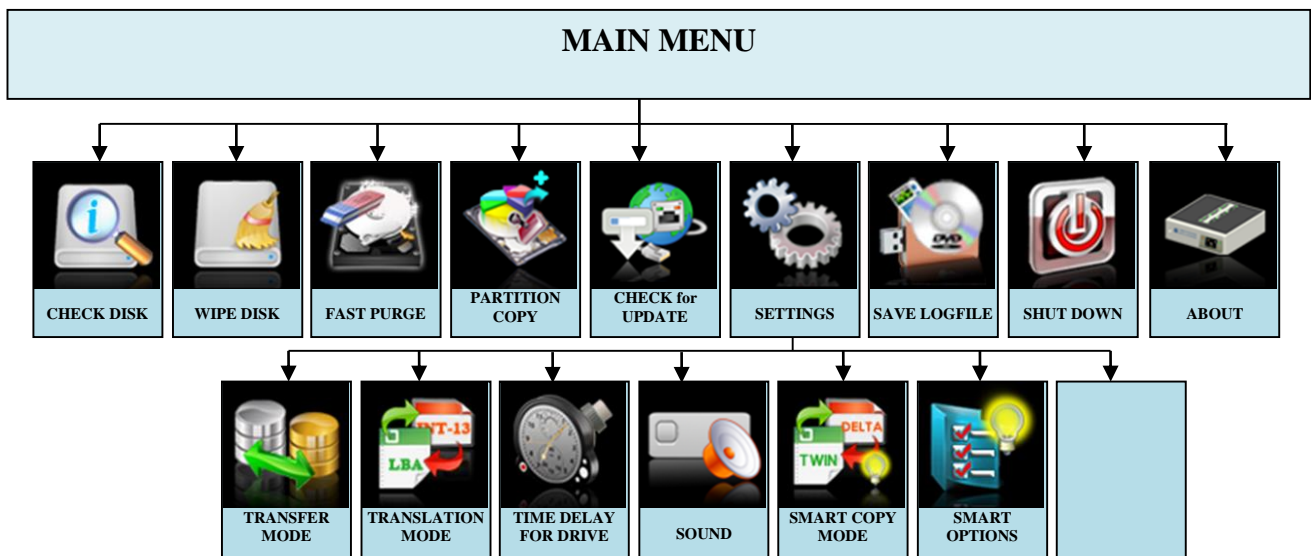
Figure 7: User interface structure

4.4 Main functions

- The main functions of the **DFX** are:
  - CHECK DISK
  - WIPE DISK
  - FAST PURGE
  - PARTITION COPY
  - CHECK for UPDATE
  - SETTINGS
  - SAVE LOGFILE
  - SHUT DOWN
  - ABOUT

4.4.1 Check Disk

Figure 8: Main menu: Check Disk function

- Check Disk powers up the drives and reads the drive information. The **DFX** user can view information about the drive or use this as a preparation step before executing any of the standard jobs such as: Mirror Copy, Smart Copy, Partition Copy, Wipe Disk and FAST Purge.
- When the user Selects the Check Disk function, the screen will show the following:
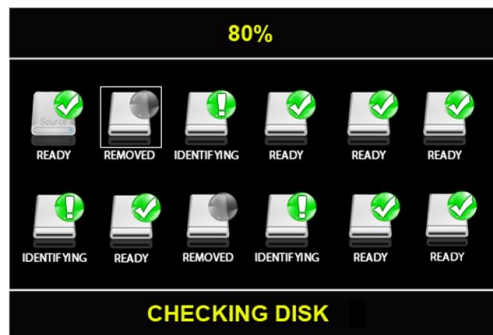
Figure 9: Check disk screen

- During the Checking Disk process, the user can use the UP/DOWN/LEFT/RIGHT buttons to navigate between drives and use the Select button to remove or re-connect a drive.
  - Each disk icon has an LED icon. The meaning of each LED icon is:
    - ● Green: Active and getting disk information.
    - ● Red: The drive startup and information processed has erred.
    - ● Grey: The drive holder is empty or was deselected from the process by the user.
  - The disk icon indicates participation in the process by its color:
    - Green Icon: indicates the disk is part of the Check Disk function.
    - Grey Icon: indicated the disk has been removed from the process by the user.
  - The Check Disk process goes through several steps as follows:
   - START-UP - preparing to check disk.
    - TURNING ON - the drive is powered on, and waiting to boot up.
    - CHECKING - waiting for disk to come ready.
    - IDENTIFYING - getting the drive information.
    - READY - drive identified successfully.
    - ERROR - an error occurred during Checking Disk.
    - REMOVED - drive deselected by end user or not installed/ready (no disk.)
- During the Checking Disk process, the LED bar will display the status of the process.
- After completing the Check Disk process, the REVIEW JOB SETUP screen will appear:
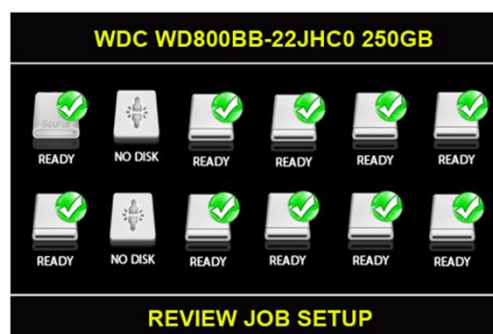
Figure 10: Review Job Setup screen

- This screen is the same as the Check Disk screen except:
  - All LEDs are at final status (not flashing.)
  - Status text: READY or REMOVED.
  - The top of the screen text shows the drive model of the Port selected.
- The user can view the drive's information in detail by pressing the SELECT button. The disk detail is shown in 2 pages, the UP and DOWN arrow buttons can be used to switch between the pages.
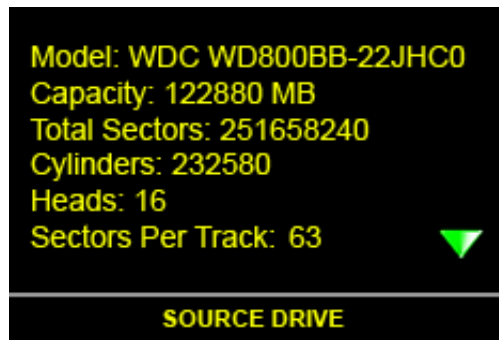
Figure 11: Detail of disk (Page 1)
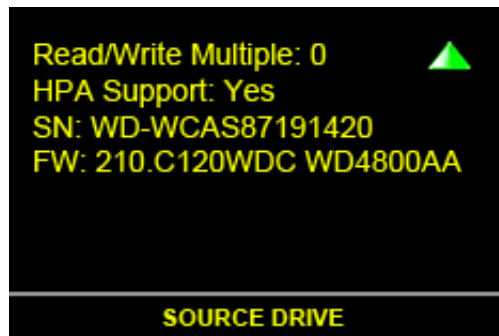
Figure 12: Detail of disk (Page 2)

- When the Review Job Setup screen appears, you can execute two Standard Jobs: Mirror Copy and Smart Copy by pressing either the MIRROR or SMART button.

4.4.1.1   Mirror Copy

- The Mirror Copy mode is valid only for target drives which have the same number of cylinders, heads and sectors per track as the source drive.
- There are two methods used to execute the Mirror Copy function:
  - The first method: press the Yellow MIRROR button on the console. The DFX will go to the Check Disk screen and then go straight to the MIRROR COPY process without showing the Review Job Setup screen.
  - The second method: Select the Check Disk function, examine the Review Job Setup screen, then press the MIRROR button on the console.
- If the Source drive or Target drives utilize the Host Protection Area (HPA) region the following screen will show before the duplication process:

Figure 13: Setting up HPA region screen

- Figure 14 shows the duplication process screen.

Figure 14: Duplication process (Mirror Copy)

- This screen is divided into three areas:
  - The status area (on the top):
    - Shows the current status: Copying / Paused.
    - Shows the percent (0% to 100%).
    - Shows the current transfer mode.
  - The job name (on the bottom): MIRROR COPY (DELTASMART COPY / TWINSMART COPY / PARTITION MIRROR / PARTITION SMART)
  - The current job information:
    - Elapsed time in hh:mm:ss format
    - Speed in MB/min
    - Total of MBytes transferred
    - Animation icons for each drive:

       / .. : Source / Target is working

       / .. : Source / Target is idle (LEDs display dimmer)

       / .. : Source / Target is error

       .. : Target is removed

- During the copying process, the status bar (10 LEDS) will be updated as followed:
  - The 10 segment LED shows the entire copying process. Each LED segment is 10% of the copy.
  - The first LED segment will flash until 10% of the copying process is completed, then it will stop flashing and turn solid.
  - The next LED segment will start flashing.
  - Note: While transitioning to the next 10%, both LED segments will flash.
- During the copying process, the user can pause the process by pushing the CANCEL button and then restart the process by pushing the SELECT button. To cancel the process push the CANCEL button two times.
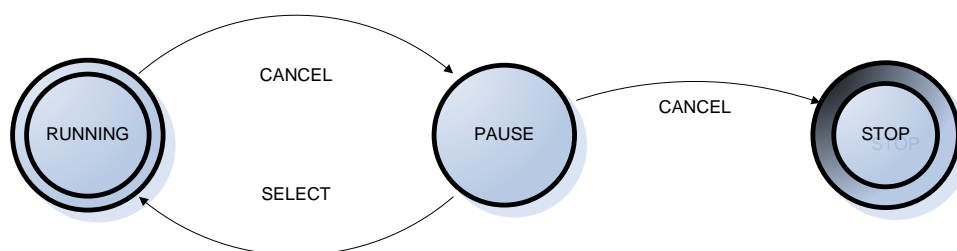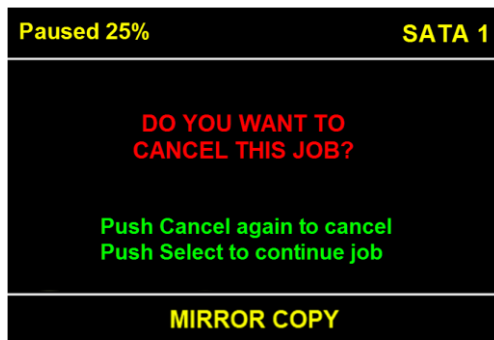
Figure 15: Copying process cycle

- When the duplication process is complete the results screen will be shown as follows:
    - Job completed successfully:

Figure 16: Complete successfully screen

- Job completed unsuccessfully:

Figure 17: Complete unsuccessfully screen

- The Alert Sound will be activated when the job is completed if the sound signal is enabled in the system options.
- On the result screen the user can press the SELECT button to view the two page duplication status report and press the CANCEL button to return to the Main Menu. Figure 18 shows the status report:

Figure 18: Status report for the copying process

4.4.1.2   Smart Copy

- This Smart Copy mode duplicates the files system structures and user data from the source drive to the designated targets keeping the basic source's partition structure intact.
- If the file system of a source partition is unknown and the source and target drives have matching heads and sector/track configuration, the target partition size will be set equal to the source partition, and the contents will be "partition mirror" copied.
- If the file system is known (with FAT12, FAT16, FAT32, NTFAT, or NTFS, Ext2, Ext3, Ext4,) the target partition size will be automatically adjusted, based on the ratio of the capacity of the source drive to the capacity of the target drive. Data will be copied file-by-file, adjusting target FAT size, and cluster size as needed.
- There are two methods to execute the Smart Copy function:
    - The first method: press the SMART button on console.
- The second method: Select the Check Disk function, review the Job Setup, then press the SMART button on the console.

4.4.2 Wipe Disk

- When the "Wipe Disk" Icon is Enabled, you can erase your target drives utilizing the DOD 5220M Wipeout Smart option. This selection will fill the target drives with zeros. To use the DOD Wipeout Smart Option you should visit the Smart Options section.
- To execute the Wipe Disk function, select the Wipe Disk function on the Main Menu.

Figure 19: Main Menu: Wipe Disk function

4.4.3 FAST Purge

- When the "FAST Purge" Icon is selected you can erase target drives by filling the Target drives with zeros.

Figure 20: Main menu: FAST Purge function

4.4.4 Partition Copy

- When in the "Partition Copy" mode the user can easily add partitions from the source drive to the target drive by selecting the desired partitions.
- To execute the Partition Copy function the user can SELECT the Partition Copy function on the Main Menu.

Figure 21: Main menu: Partition Copy function

- In this function instead of displaying the Review Job Screen after Checking Disk, the screen will show the Partition List Info of Source drive:

Figure 22: Partition List Info screen example

- In this screen the control buttons function as follows:
    - UP/DOWN buttons: move up and down to select partitions.
    - LEFT/RIGHT buttons: disable/enable the selected partitions.
    - CANCEL button: cancel the Partition Copy process.
    - MIRROR button: execute the Partition Mirror copy function.
    - SMART button: execute the Partition Smart copy function.
- When the Partition List Info screen appears, you can execute two Standard Jobs: Partition Mirror and Partition Smart by pressing either the MIRROR button or SMART button.

4.4.5 Check for Update

- This function is used for upgrading the software and firmware. See section 8.

4.4.6 Settings

- The system settings permit the user to set global parameters that are common to all jobs. Select SETTINGS from the main menu to set system settings.

Figure 23: Main Menu: Settings function

- The System Settings function includes the following functions:
  - Transfer Mode
  - Translation Mode
  - Time Delay for Drive
  - Verification
  - Sound Signal
  - Smart Copy Mode (Twin and Delta)
  - Smart Options

4.4.6.1 Transfer Mode
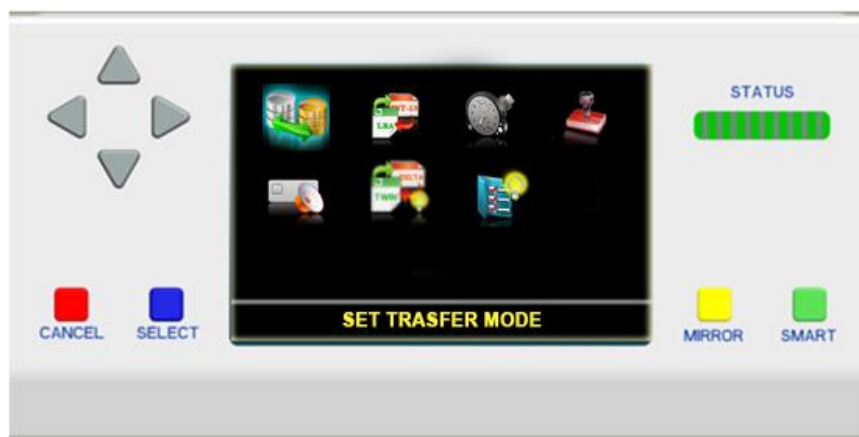
Figure 24: Settings Menu: Set Transfer Mode

Transfer Mode

- This option permits setting the maximum UDMA mode to be used in the duplication process. Sometimes older drives cannot support the higher UDMA speeds. The DFX will automatically reduce the UDMA mode during the copy process; however this setting gives more control of the UDMA mode to the user. (Default: UDMA Mode 6)

Sectors/Transaction

- This option permits setting the number of sectors for each read or write transaction. (Default: Sectors/Transaction 256)

Figure 25: Set Transfer Mode screen

- In this screen the control buttons operate as follows:
    - UP/DOWN button - select the UDMA mode or Sectors per Transaction option.
    - LEFT/RIGHT button - decrease/increase the value of the options.
    - CANCEL button - return to the Settings Menu without saving the new settings.
    - SELECT button - Save the new settings.
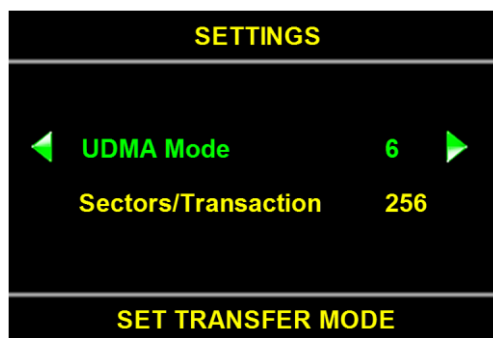
4.4.6.2   Translation Mode
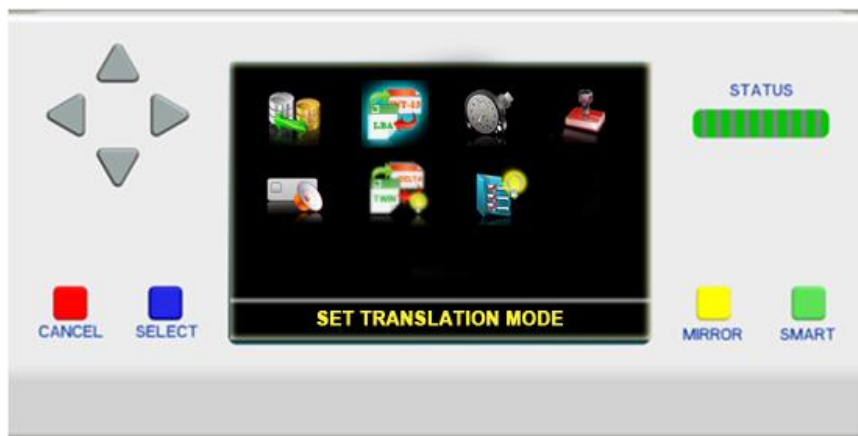
Figure 26: Settings Menu: Set Translation Mode

Enable LBA translation

- When enabled, this option will ensure the translated heads value will be a power of 2. When disabled, the translated heads value may or may not be a power of 2.

Enable Interrupt 13 translation

- When enabled, drives larger than 4GB with 16 heads will automatically have their head count reduced to 15 heads for translation purposes.

Figure 27: Set Translation Mode screen

- There are 3 options for this setting: (Default: LBA Mode)
    - Enable LBA Mode.

- Enable INT-13 Mode
- Disable both LBA Mode and INT-13 Mode.

- In this screen the buttons function as follows:
  - UP/DOWN buttons: move between LBA mode and INT13 mode.
  - LEFT/RIGHT buttons: disable/enable the selected mode.
  - CANCEL button: return to the Settings Menu without saving the new settings.
  - SELECT button: Save the new settings.

4.4.6.3 Time Delay for Drive
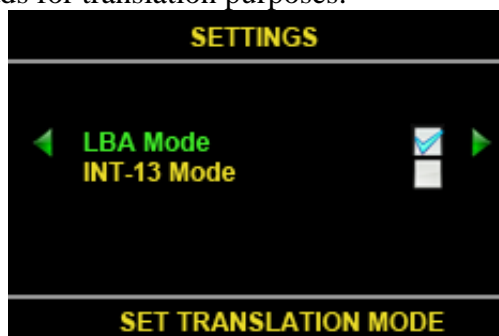
Figure 28 - Set Time Delay for Drive

Drive power-up delay

- A slight delay is added between each drive power-on step. This is to protect the power supply and electronics from power supply surges. This parameter sets the time delay in seconds between each drive spin-up. (Default: 2 sec.) At the default delay setting all drives will be powered up in about 22 seconds.

Drive spin-down time

- This is the time allowed for spin down after power is turned off to the drives and before the ' Safe to remove drive ' message is displayed. This setting gives the drive time to store the last data written to the drive after the power is removed. (Default: 1 sec.)

Drive command timeout

- This is the time allowed for a drive to respond to a command before declaring a timeout error. If the drive does not respond within the allowed time, it has failed - indicating a problem, such as not connected. Most drives will respond in 5 seconds. (Default: 3 sec.)

Drive command delay

- After the drive has received and acknowledged a command the system will delay before checking for completion of the command.   (Default: 3 ms)

Drive command retry

- This is the number of times the system will send a command to the drive before declaring the drive is not operable. (Default: 3 times)

Drive power-settling time

- This is a time delay used after power is applied to allow the drive electronics to settle and the drive to come up to speed before further interrogation and recalibration of the drive. (Default: 3 sec.)
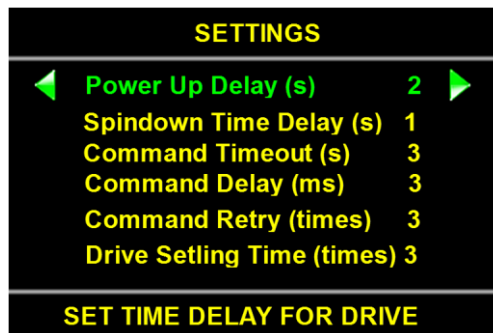
Figure 29: Set Time Delay for Drive

- Functions of the control buttons:
    - UP/DOWN buttons - select which option to set.
    - LEFT/RIGHT buttons - decrease/increase the value of the selected option.
    - CANCEL button - return to the Settings Menu without saving the new settings.
    - SELECT button - Save the new settings.

4.4.6.4 Verification
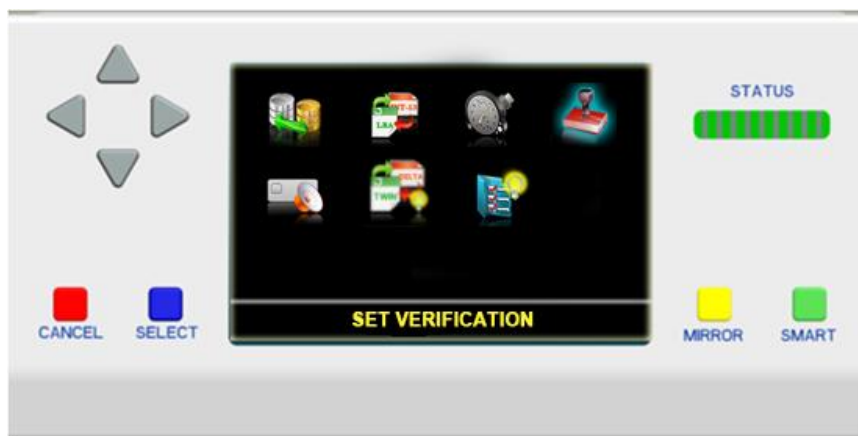
Figure 30: Settings Menu: Set Verification

- When this option is enabled, the data on the target drives is again read back and compared to the source drive after the duplication process. (Default: Disabled)
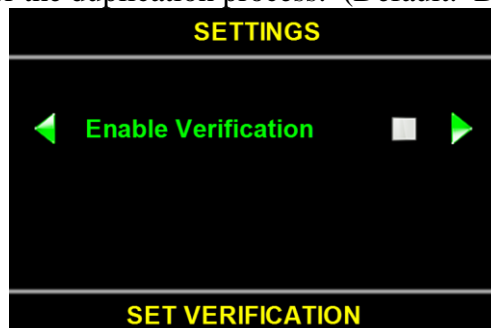
Figure 31: Set Verification screen

- Function of the control buttons:
    - LEFT/RIGHT: disable/enable Verification.
    - CANCEL button: return to the Settings Menu without saving the new settings.
    - SELECT button: Save the new settings.

4.4.6.5 Sound Signal

Figure 32: Settings Menu: Set Sound signal

Sound Signal

- When this option is checked at the end of every job the **DFX** emits an alert sound on the speaker. (Default: Enabled)
- When the button sound is selected every button press on the front console will produce a sound. (Default: Enabled)

Figure 33: Set Sound signal screen

- Function of the control buttons:
    - UP/DOWN - select the Alert Sound or Button Sound option to change.
    - LEFT/RIGHT - disable/enable sound signal.
    - CANCEL button - return to the Settings Menu without saving the new settings.
   - SELECT button - Save the new settings.

4.4.6.6 Smart Copy Mode

Figure 34: Settings Menu: Set Smart Copy Mode

DeltaSmart *(Auto)* Copy

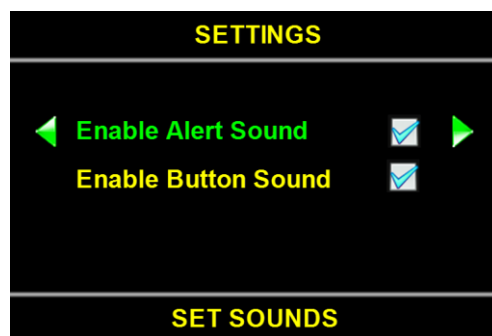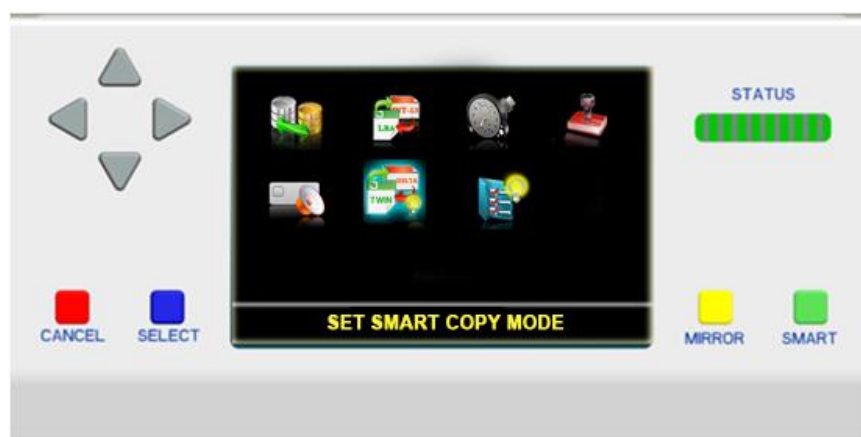- Choose this mode for Data-only copying from a different size source drive to different size target/s. For different size drives (differences of capacity, i.e., cylinders, sectors, heads) for file systems of FAT, FAT32, NTFS, and EXT2/3/4, choosing SmartCopy for duplicating from the *Delta* source drive to a set of *Delta* target/s will typically require less time than Mirror Copy. You may also create a new Source drive/s for use in the quicker TwinSmart Copy mode for subsequent duplications provided the Image size falls safely within both drives capacities.
- In this copy mode, the target partition/s will be resized to the ratio of the master partition/s. This process saves time by coping only the data and not the blank and/or empty sectors.

TwinSmart Copy (default: TwinSmart Copy)

- For Identical drives use TwinSmart mode for Faster Data-only copying. This is for when the source and target drives have the same Geometry's/capacity. The TwinSmart Copy mode identifies data and file system structure locations on the source disk and uses a quick mirror copy to duplicate only those areas to the target disks—this saves system overhead time when compared to the DeltaSmart copy mode. The twin copy supports the following file systems: FAT, FAT32, NTFS, and EXT2/3/4 (Linux.)
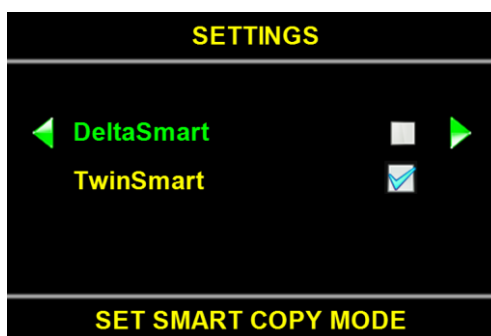
Figure 35: Set Smart Copy Mode screen

- There are 2 options for this setting:
  - Enable DeltaSmart.
  - Enable TwinSmart.

- The control buttons operates as follows:
  - UP/DOWN buttons: Select Automatic Smart or Twin copy modes.
  - LEFT/RIGHT: disable/enable the selected item.
  - CANCEL button: return to the Settings Menu without saving the new settings.
  - SELECT button: Save the new settings.

4.4.6.7   Smart Copy Options
- The *Smart Options* suite of utilities including both <u>DeltaSmart</u> Copy (Auto) and <u>TwinSmart</u> Copy for NTFS and EXT2/3/4 file system options are designed to make the DataFast hard disk duplication product line more productive and useful. *Smart Option* utilities are not part of the standard DataFast features; they are available as add-on order options with the initial purchase or can be ordered later on as an upgrade.

Figure 36: Settings Menu: Set Smart Options

NTFS Smart Copy Option

- This option allows the **DFX** unit to SmartCopy <u>ONLY the DATA</u> but not the blank or empty sectors, e.g., if a NTFS partition from the Source to the Target Drives has only 1/3 of its partition containing (image) data, then the other 2/3rds of this empty partition is not copied, saving valuable time in the duplication process.
- There are two SmartCopy modes -<u>DeltaSmart</u> and <u>TwinSmart</u>. In the DeltaSmart mode the target partitions will be scaled proportionally for the size of the target drives to accommodate a Source drive that has a different geometry (different capacity, heads, sectors, cylinders) provided the Image (data-only) size is within the Target/s drive capacity.
- For Identical drives, the TwinSmart mode will also enhance the duplication process by only copying the data from the Source drive to the Target drive/s and NOT copying blank/empty sectors. TwinSmart mode uses less system overhead which saves more time than the DeltaSmart copy mode. It is suggested to use DeltaSmart for different size drives and TwinSmart for identical size drives for best efficiency.

Ext2/3/4 Smart Copy Option

- Ext2/3/4 are the Linux supported file systems. This option enables the **DFX** unit to copy <u>ONLY the DATA</u> found on the EXT2/3/4 file system partition/s to the targets while ignoring empty or unused sectors. The benefits are similar to the benefits of the NTFS Smart Copy by copying the data only and not the blank/empty sectors. The TwinSmart mode is suggested for duplication of "identical" drives, because it uses less O/S overhead and will save you valuable time in duplication. It is suggested to use DeltaSmart for different size drives and TwinSmart for identical size drives for best efficiency.

DoD Wipeout

- The DoD Wipeout Smart Option enables Target drives to be completely "sanitized" (erased) or otherwise overwritten in accordance with the Department of Defense document number DoD 5220.22-M specification. The only higher security measure recommended is the destruction of the disk drive or "pulverization" of the drive.

HPA Copy Smart Option

- Host Protect Area (HPA) is a feature that was defined in ATA standard. A reserved area for data storage outside the normal operating system file system which is required for several specialized applications.

- When the HPA feature is activated on Smart Option, you can see the HPA status of disk drives.
- The HPA Smart Option expands the HPA area permitting duplication of the HPA area to the target drives.
- You can also expand target drives to full capacity and then set the HPA address to a user specified value.
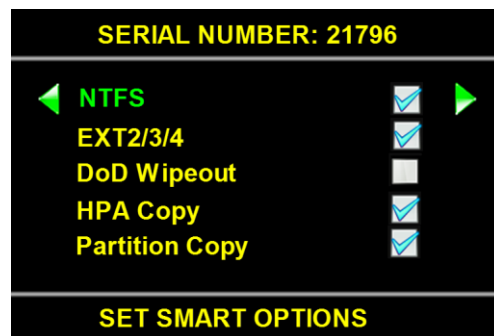

Figure 37: Set Smart Options screen

- The buttons for this screen work as follows:
    - UP/DOWN buttons: Select the Smart Option to set.
    - LEFT/RIGHT: disable/enable the selected item.
    - CANCEL button: return to the Settings Menu without saving the new settings.
    - SELECT button: update Smart Options from the license file that's on the USB drive.

Partition Copy Smart Option

- The Partition Copy Smart option can be used to choose one or more partitions from the master drive, to be duplicated to the target drive. In addition to choosing one or more partitions, the partitions can also be resized and/or reordered on the target drive. Each target drive configuration can be determined independent of the other target drives. With this option, a master drive can be constructed containing many different software loads, each of which can be duplicated individually to target drives.

How do I get more Smart Options?

- The **DFX** currently comes with: NTFS, EXT2/3/4, DoD Wipe, HPA Copy, and Partition options available.
- When the Smart Options screen is displayed, write down the internal serial number that is displayed on the top. Call Greystone Data Technology at (510) 661-6793 (PST) or send an email to techsupport@greystonedatatech.com if the Unlock codes are needed.

4.4.7 Save Logfile

Figure 38: Main menu: Save Logfile function.

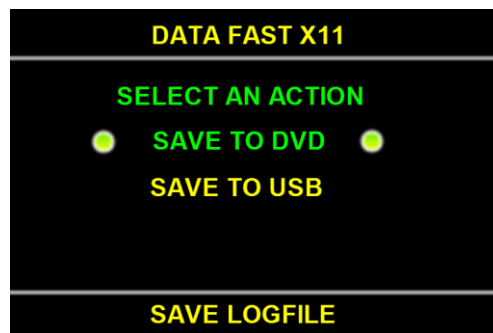- There are two options in Save Logfile menu: save to USB or save to ±DVD.

Figure 39: Save logfile menu

- All jobs will be recorded in the INFORMATION.TXT file. The following information is logged:
    - Date and time
    - Type of copy
    - Source and target drives
    - Status of copy operation
    - Total MB copied
    - Duration of Copy
    - Startup and shutdown times of the program
- This function is used to copy the Logfile data from the **DFX** to the USB or DVD drive (use only DVD-RW or DVD+RW disc's.)
- Before executing this function, the user has to insert a ±RW DVD disc into a DVD drive or put the USB memory stick into the upper right hand USB slot in the back of the DFX.
- Then the DFX will copy the latest Logfile data onto the DVD disc or USB memory stick and show the following screen:
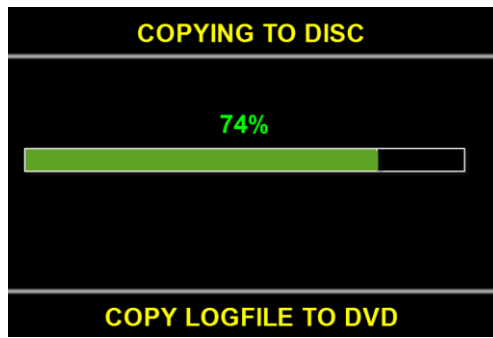
Figure 40: Copying Logfile screen
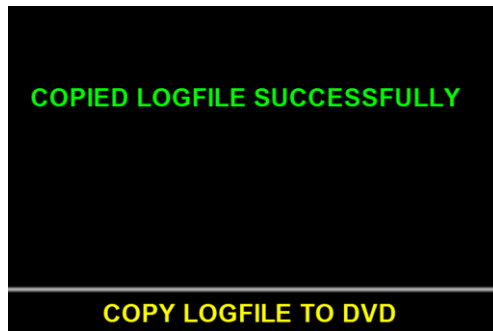
- Here is the result screen:

Figure 41: Copied Logfile result

4.4.8 Shut down

Figure 42: Main Menu: Shut down function

- There are two actions in Shut down menu: turn off or restart the system
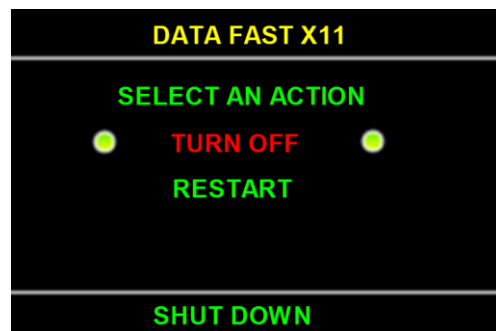
Figure 43: Shut down screen

- The buttons have the following actions in this screen:
  - UP/DOWN buttons: chose the action to perform.
  - SELECT button: execute the selected action.
  - CANCEL button: return the Main Menu.

- When user selects Turn Off or Restart the **DFX** will show a door closing.
  - If user chooses Turn off: the closed door logo will be displayed until the machine's power is turned off.
  - If user chooses Restart option the screen will go back the booting screen.

Figure 44: Close the door screen

4.4.9 About

Figure 45: Main Menu: About function

- The About screen shows information about the **DFX** including the following information: Software Version, Hardware Version, Firmware Version, and Serial Number.

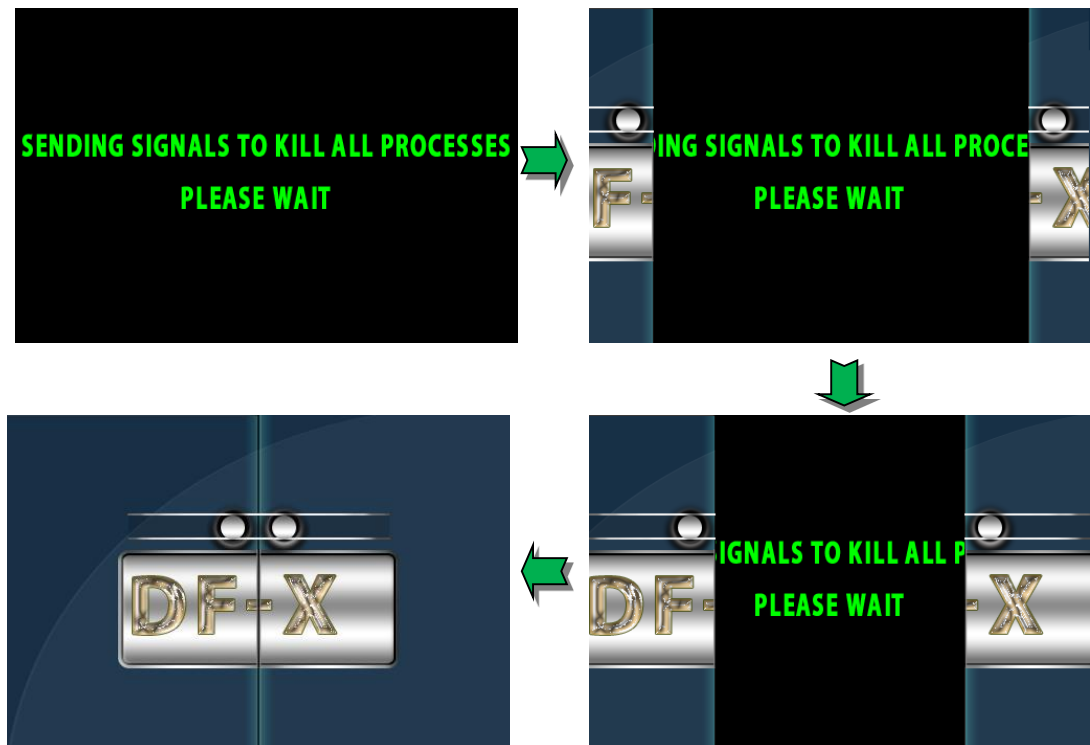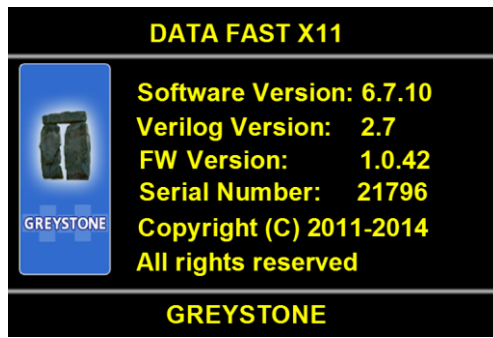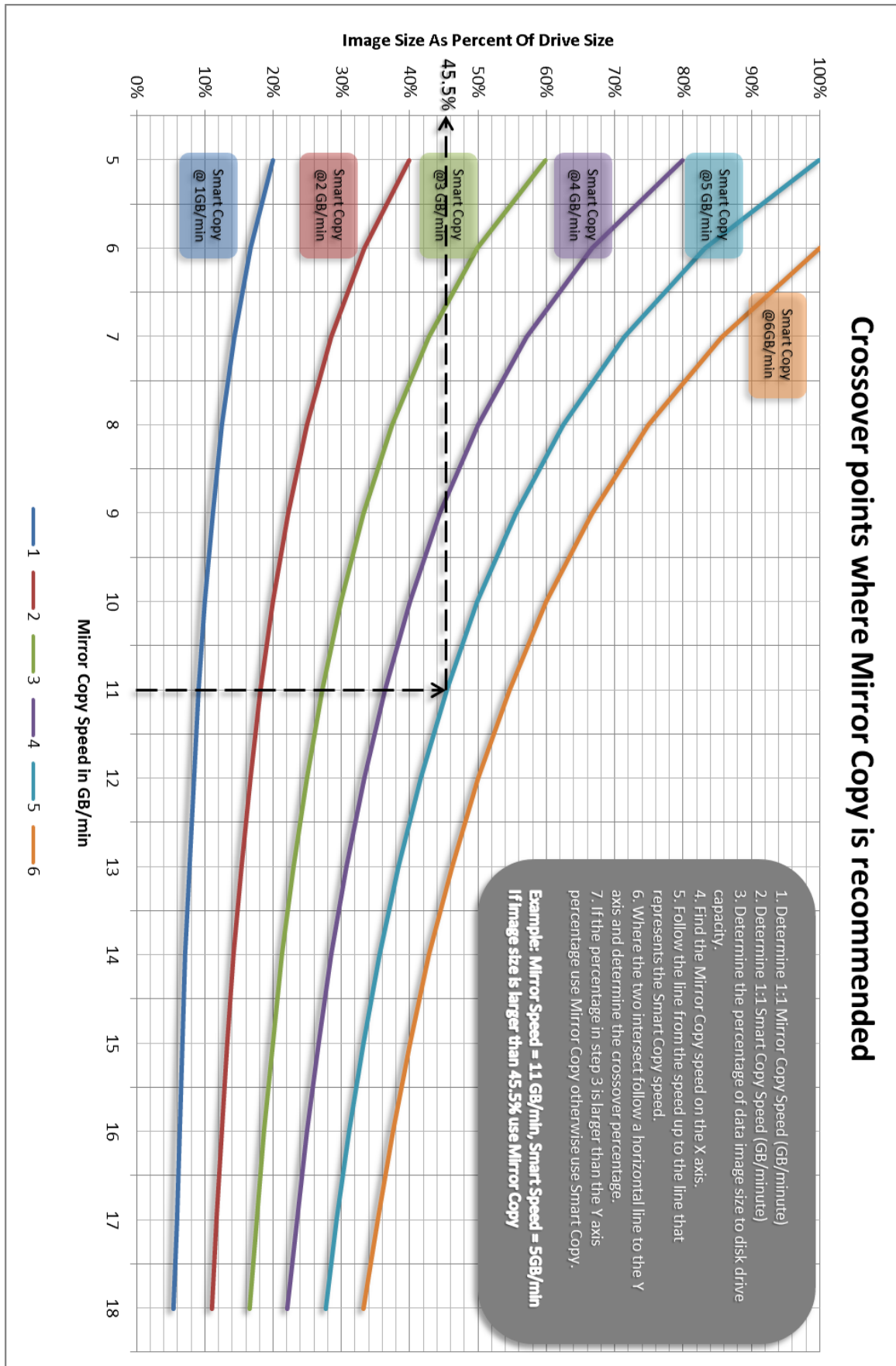**Figure 46: About screen**

5   Mirror Copy Decision Chart

Crossover points where Mirror Copy is recommended

Image Size As Percent Of Drive Size

- Smart Copy @ 1GB/min
- Smart Copy @ 2 GB/min
- Smart Copy @ 3 GB/min
- Smart Copy @ 4 GB/min
- Smart Copy @ 5 GB/min
- Smart Copy @ 6GB/min

Mirror Copy Speed in GB/min

1. Determine 1:1 Mirror Copy Speed (GB/minute)
2. Determine 1:1 Smart Copy Speed (GB/minute)
3. Determine the percentage of data image size to disk drive capacity.
4. Find the Mirror Copy speed on the X axis.
5. Follow the line from the speed up to the line that represents the Smart Copy speed.
6. Where the two intersect follow a horizontal line to the Y axis and determine the crossover percentage.
7. If the percentage in step 3 is larger than the Y axis percentage use Mirror Copy otherwise use Smart Copy.

Example: Mirror Speed = 11 GB/min, Smart Speed = 5GB/min If image size is larger than 45.5% use Mirror Copy

For example: If the file system image size is 20GB and the drive size is 120GB with the example shown the choice would be to **SmartCopy** because *17% is less than the 45.5% crossover point*.

5.1 DUPLICATION PROCEDURE:

- **Step 1** - Power on the DFX.
- **Step 2 -** Set up the DFX with the appropriate drive adapters, drive holders, and drive alignment blocks for the hard drive type you are going to duplicate.
- **Step 3 -** Insert hard drives into the adapter boards.
- **Step 4 -** For TWINSMART COPY, select CHECK DISK from the DFX menu by pressing the SELECT button. Verify all drives come ready and contain the identical capacities by selecting and viewing each port. Press Cancel button once to back-out and arrow over to next port.

- **Step 5** - Press the SMART button on the console to begin the TWINSMART COPY operation.
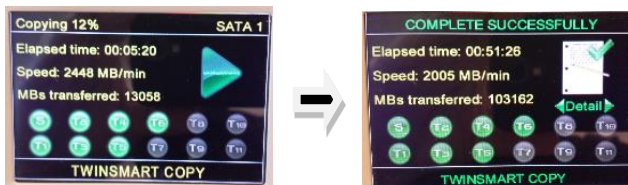
- **Step 6** - To review results arrow to the desired port and press SELECT.
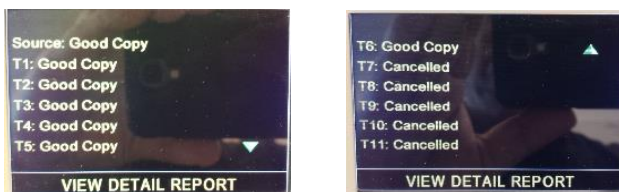
- **Step 7** - Press Cancel once to return to the previous screen. Press Cancel again to exit to main menu.

5.2 DOWNLOAD ERASE RESULTS PROCEDURE:

Here are the following steps that will allow you to download and Archive the ERASE results/report to a "±RW DVD" after a successful purge operation.

- **Step 1** - Open the Tray on the DVD Drive, insert an Archive (log) DVD ±RW disc – then close the drive tray.
- **Step 2** - Select "SAVE LOGFILE" then select "SAVE TO DVD," the results will automatically be recorded to the Archive (log) DVD Disc.

Note – Manually open the tray and you may now insert the Archive Disc into a Laptop/PC to back-up your purge log data if you wish. Or, if you have additional hard drives to purge you can leave the DVD installed to Append the subsequent purge session/s. Do not "SHUT DOWN" or Power Down unless you intend to begin Duplication—all log Data will be lost when SHUT DOWN/powered down.

6 NEW SOFTWARE UPGRADE/DOWNLOAD PROCEDURE:

There three ways for upgrading the NEW SOFTWARE to DFX Duplication System: using a DVD Disc, using a USB drive or upgrade from internet.

The following steps will allow you to download NEW SOFTWARE to upgrade the DFX Duplication System using a DVD Disc.

- **Step 1:** Insert the DVD disc that contains the NEW SOFTWARE.
- **Step 2:** From main menu, select "CHECK for UPDATE" function for upgrading software and firmware:

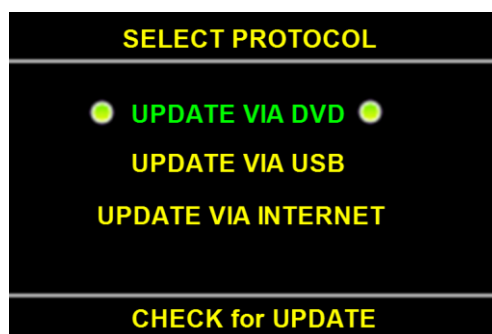

Figure 47: Check for Update function

Figure 48: Check for Update: select protocol screen

- For example, after selecting the "UPDATE VIA DVD" method, the **DataFastX-G3™** will find available version USB drive and display:

Figure 49: Check for Update: Found the new version screen

- Use 'Left-Right' buttons for selecting items that will be upgraded (with new items default will be checked,) then press the 'Select' button for upgrading.
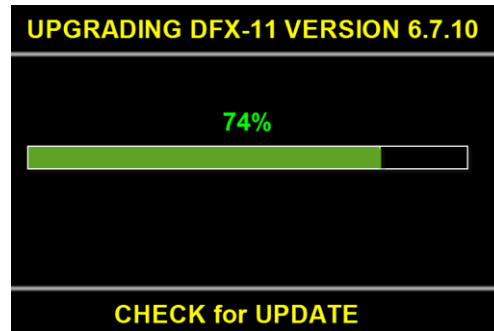
- Waiting for upgrading process:

UPGRADING DFX-11 VERSION 6.7.10

74%

CHECK for UPDATE

Figure 50: Check for Update: Upgrading software.

- If upgrade LCD module, the following screens will be showed:

1.0.40

WRITING DEVICE DRIVER

DO NOT POWER OFF DURING UPGRADING FIRMWARE

UPGRADING LCD MODULE

1.0.40

WRITING FILE SYSTEM

DO NOT POWER OFF DURING UPGRADING FIRMWARE

UPGRADING LCD MODULE

1.0.40

WRITING APPLICATION

DO NOT POWER OFF DURING UPGRADING FIRMWARE
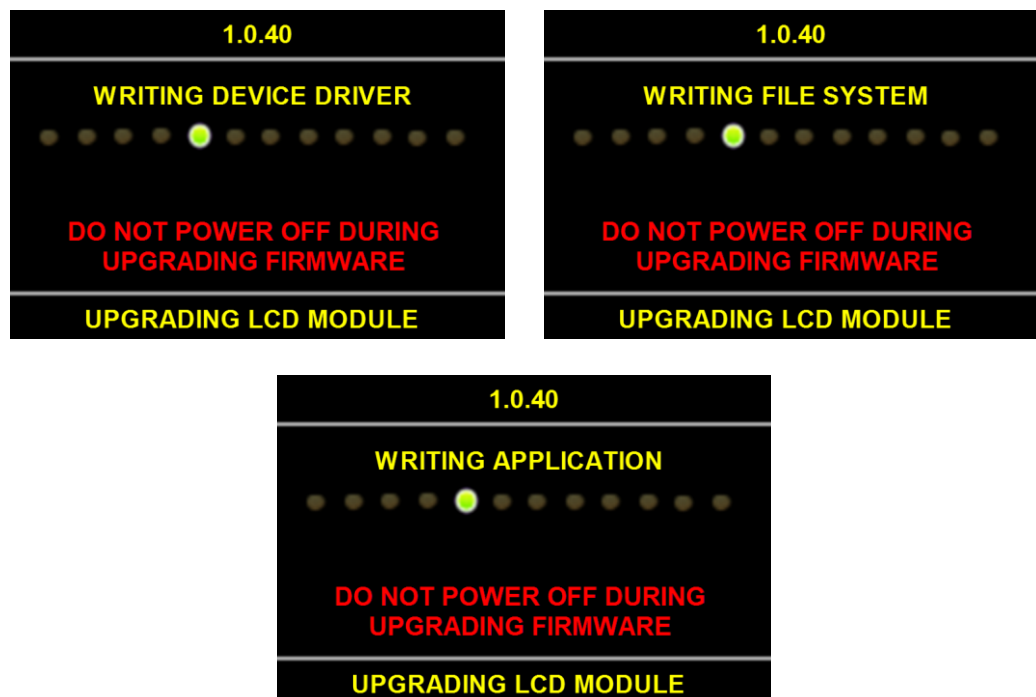
UPGRADING LCD MODULE

Figure 51: Check for Update: Upgrading for LCD module

- If the upgrading is successful, the new **DataFastX-G3™** will be show the following message, press any button to shut down the DFX machine and then power on the machine again.
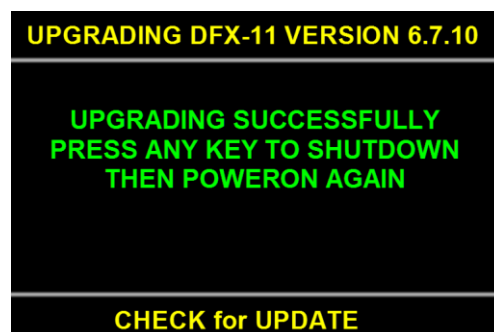
UPGRADING DFX-11 VERSION 6.7.10

UPGRADING SUCCESSFULLY PRESS ANY KEY TO SHUTDOWN THEN POWERON AGAIN

CHECK for UPDATE

Figure 52: Check for Update: Upgrading successfully screen

CONTACT INFORMATION:

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- ➢ **Return Material Authorization (RMA) number request:**
Call: 510-661-6793 Ext.227
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